

ABSTRACT

There is provided a radio communication apparatus and a radio communication method in which
5 a transmission mixer and a reception mixer are shared
in mobile communication systems each having a
different frequency band without using frequency
switching means for frequency synthesizers to make
it possible to improve miniaturization of the
10 apparatus. At the transmitting side, transmission
IF values of f_{11} and f_{12} ($f_{11}=f_{12}$) are set to
frequencies close to $(f_{t1}-f_{t2})/2$, and a lower local
configuration is formed in the first system and an
upper local configuration is formed in the second
15 system using the frequency lower than that of the
first system. At the receiving side, values of f_{41}
and f_{42} ($f_{41}=f_{42}$) are set to frequencies close to
 $(f_{r1}-f_{r2})/2$, a lower local configuration is formed
in the first system and an upper local configuration
20 is formed in the second system using the frequency
lower than that of the first system. In addition,
here, f_{t1} , f_{11} , f_{r1} , and f_{41} are transmission
frequency, transmission intermediate frequency,
reception frequency, and reception intermediate
25 frequency in the first system, respectively.
Similarly, f_{t2} , f_{12} , f_{r2} , and f_{42} are transmission
frequency, transmission intermediate frequency,

reception frequency, and reception intermediate frequency in the second system, respectively.